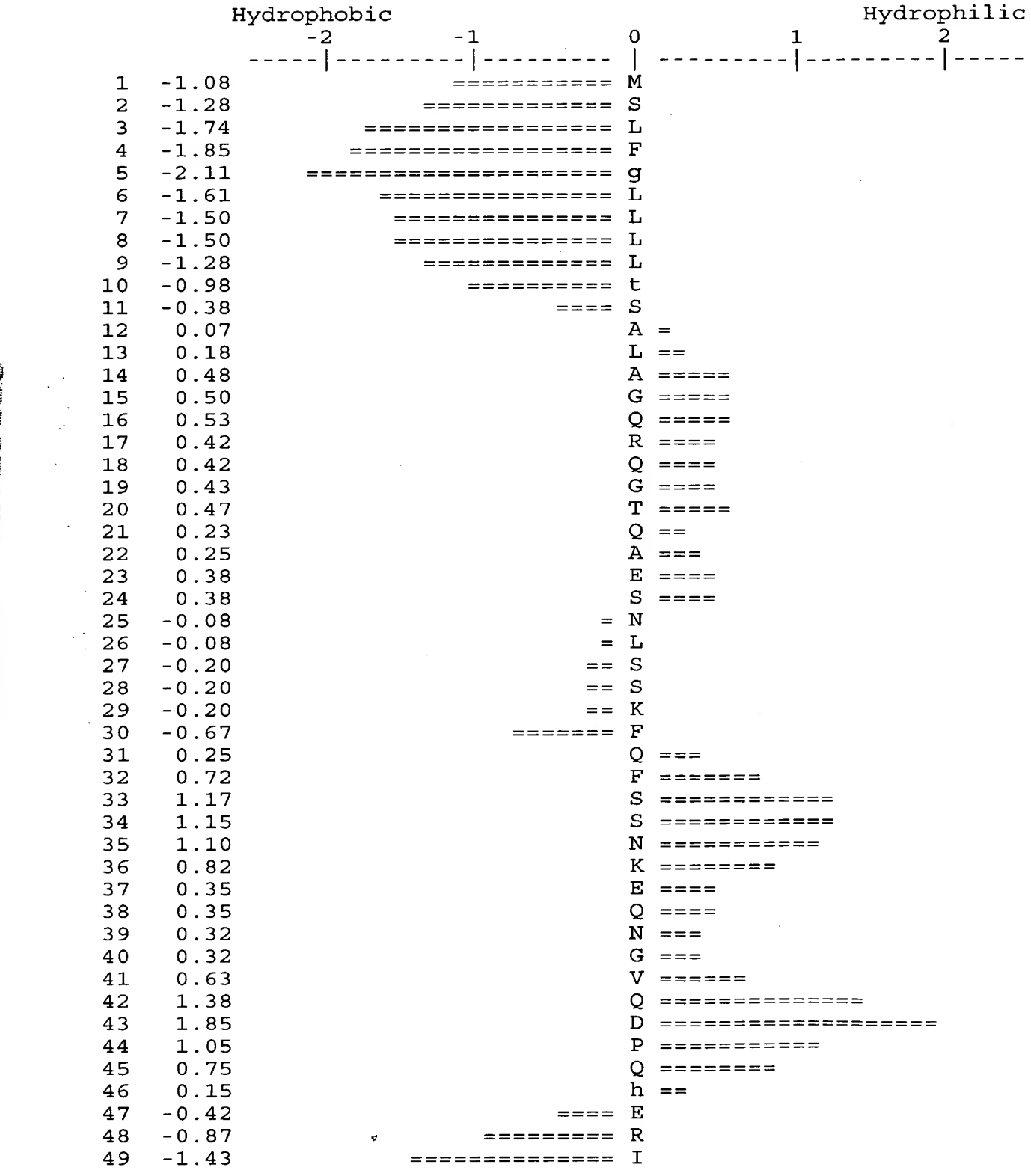
Hydrophobic
Hydrophilic
-2
-1
0
1
2
1 -1.08 M
2 -1.28 S
3 -1.74 L
4 -1.85 F
5 -2.11 g
6 -1.61 L
7 -1.50 L
8 -1.50 L
9 -1.28 L
10 -0.98 t
11 -0.38 S
12 0.07 A
13 0.18 L
14 0.48 A
15 0.50 G
16 0.53 Q
17 0.42 R
18 0.42 Q
19 0.43 G
20 0.47 T
21 0.23 Q
22 0.25 A
23 0.38 E
24 0.38 S
25 -0.08 N
26 -0.08 L
27 -0.20 S
28 -0.20 S
29 -0.20 K
30 -0.67 F
31 0.25 Q
32 0.72 F
33 1.17 S
34 1.15 S
35 1.10 N
36 0.82 K
37 0.35 E
38 0.35 Q
39 0.32 N
40 0.32 G
41 0.63 V
42 1.38 Q
43 1.85 D
44 1.05 P
45 0.75 Q
46 0.15 h
47 -0.42 E
48 -0.87 R
49 -1.43 I

Fig. 1A

50	-1.10	===========	I	
51	-0.80	========	t	
52	-0.18	==	V	
53	-0.23	==	S	
54	-0.37	====	T	
55	-0.25	===	N	
56	-0.28	===	G	
57	0.22		S	==
58	-0.25	===	I	
59	0.05		H	
60	0.05		S	
61	-0.07	=	P	
62	-0.05		R	
63	-0.55	======	F	
64	0.37		P	====
65	0.40		H	====
66	0.42		T	====
67	0.23		y	==
68	-0.08	=	P	
69	-0.33	===	R	
70	-1.40	==============	N	
71	-0.93	=========	T	
72	-1.17	============	V	
73	-1.17	============	L	
74	-0.95	==========	V	
75	-0.95	==========	W	
76	0.12		R	=
77	0.12		L	=
78	0.45		V	=====
79	0.45		A	====
80	-0.03		V	
81	-0.08	=	E	
82	-0.55	======	E	
83	-1.35	==============	N	
84	-1.45	==============	V	
85	-1.62	================	W	
86	-0.55	======	I	
87	0.25		Q	===
88	0.72		L	=======
89	0.60		T	======
90	0.67		F	=======
91	0.78		D	========
92	0.78		E	========
93	0.78		R	========
94	0.28		F	===
95	1.20		G	============
96	1.70		L	=================
97	2.50		E	=========================
98	1.70		D	=================
99	1.03		P	==========
100	1.53		E	===============
101	0.65		D	=======
102	0.65		D	=======

Fig. 1B

```
103  -0.27             === I
104  -0.22              == C
105   0.45                 K =====
106  -0.30             === Y
107   0.58                 D ======
108   0.58                 F ======
109   1.00                 V ==========
110   1.30                 E =============
111   1.30                 V =============
112   1.55                 E ================
113   0.98                 E ==========
114   0.18                 P ==
115  -0.12               = S
116  -0.17              == D
117  -0.17              == G
118  -0.73         ======= T
119  -0.83        ======== I
120  -0.53           ===== L
121  -0.80        ======== G
122  -0.80        ======== R
123  -1.37  ============== W
124  -1.05     =========== C
125  -0.88       ========= G
126  -0.88       ========= s
127   0.18                 G ==
128   0.22                 T ==
129  -0.02                 V
130   0.28                 P ===
131   0.78                 G ========
132   0.78                 K ========
133   0.32                 Q ===
134   0.32                 I ===
135   0.32                 S ===
136   0.77                 K ========
137  -0.03                 G
138   0.47                 N =====
139   0.02                 Q
140  -0.27             === I
141   0.08                 R =
142   0.08                 I =
143   0.88                 R =========
144   0.00                 F
145   0.00                 V
146   0.25                 S ===
147   0.25                 D ===
148   0.25                 E ===
149  -0.25             === Y
150   0.13                 F =
151   0.13                 P =
152  -0.03                 S
153  -0.38            ==== E
154  -0.97      ========== P
155  -1.35  ============== G
156  -1.32   ============= F
```

Fig. 1C

```
157   -1.20                ========== C
158   -1.28               ========== I
159   -1.20                ========== H
160   -1.12                 ========== Y
161   -0.70                     ======= N
162   -1.15                ========== I
163   -0.92                    ========= V
164   -0.17                       == M
165   -0.03                          P
166   -0.28                     === Q
167   -0.27                     === F
168    0.15                         T =
169    0.27                         E ===
170   -0.48                   ===== A
171   -0.70                  ======= V
172   -0.45                    ==== S
173   -0.50                   ===== P
174   -0.45                   ===== S
175   -0.58                  ====== V
176   -0.63                  ====== L
177   -0.33                     === P
178   -0.63                  ====== P
179   -0.13                       = S
180   -0.48                   ===== A
181   -0.70                  ======= L
182   -0.37                    ==== P
183   -0.33                     === L
184   -0.12                       = D
185   -0.92                    ========= L
186   -1.18                ========== L
187   -0.97                  ========== N
188   -1.42              ============== N
189   -2.02   ==================== A
190   -2.00   ==================== I
191   -2.00   ==================== t
192   -0.93                ========= A
193   -0.35                    ==== F
194   -0.23                      == s
195    0.03                         T
196    0.60                         L ======
197    0.52                         E =====
198   -0.28                     === D
199   -0.28                     === L
200    0.02                         I
201    0.82                         R ========
202    0.82                         Y ========
203    1.03                         L ==========
204    1.37                         E ==============
205    0.57                         P ======
206    1.07                         E ==========
207    0.27                         R ===
208    0.27                         w ===
209    0.93                         Q =========
210    0.60                         L ======
```

Fig. 1D

211	0.52		D	=====
212	0.52		L	=====
213	0.82		E	========
214	0.25		D	===
215	-0.42	====	L	
216	-0.08	=	Y	
217	0.00		R	
218	-0.80	========	P	
219	-0.80	========	T	
220	-0.23	==	w	
221	-0.15	=	Q	
222	-0.60	======	L	
223	-0.55	======	L	
224	-0.67	=======	G	
225	-0.67	=======	K	
226	-0.67	=======	A	
227	-0.08	=	F	
228	0.38		V	====
229	1.13		F	===========
230	1.30		G	=============
231	1.05		R	===========
232	1.05		K	===========
233	0.25		S	===
234	0.23		R	==
235	-0.57	======	V	
236	-0.62	======	V	
237	-0.43	====	D	
238	-0.43	====	L	
239	0.37		N	====
240	0.08		L	=
241	0.88		L	=========
242	0.88		T	=========
243	0.57		E	======
244	0.12		E	=
245	-0.55	======	V	
246	-0.37	====	R	
247	-0.87	=========	L	
248	-0.07	=	Y	
249	0.35		S	====
250	-0.12	=	C	
251	0.10		T	=
252	-0.08	=	P	
253	-0.03		R	
254	-0.83	========	N	
255	-0.37	====	F	
256	0.55		S	======
257	1.00		V	==========
258	0.95		S	==========
259	1.40		I	==============
260	2.20		R	======================
261	1.63		E	================
262	1.63		E	================
263	1.07		L	===========
264	1.07		K	===========

Fig. 1E

265	0.15		R	=
266	-0.92	=========	T	
267	-0.85	=========	D	
268	-1.35	==============	T	
269	-1.45	===============	I	
270	-1.45	==============	F	
271	-1.33	=============	W	
272	-1.02	==========	P	
273	-0.52	=====	G	
274	-0.02		C	
275	-0.02		L	
276	0.28		L	===
277	0.58		V	======
278	0.87		K	=========
279	0.20		R	==
280	-0.38	====	C	
281	-0.38	====	G	
282	-0.55	======	G	
283	-0.85	=========	N	
284	-0.97	==========	C	
285	-0.77	========	A	
286	-0.85	=========	C	
287	-0.65	=======	C	
288	0.02		L	
289	0.15		H	==
290	0.27		N	===
291	0.07		C	=
292	-0.02		N	
293	-0.05		E	
294	-0.50	=====	C	
295	0.17		Q	==
296	-0.12	=	C	
297	-0.02		V	
298	0.73		P	=======
299	1.23		S	============
300	1.20		K	============
301	0.62		V	======
302	1.37		T	==============
303	1.18		K	============
304	0.38		K	====
305	-0.08	=	Y	
306	-0.40	====	H	
307	0.18		E	==
308	-0.32	===	V	
309	0.43		L	====
310	0.67		Q	=======
311	0.63		L	======
312	0.68		R	=======
313	0.68		P	=======
314	0.68		K	=======
315	-0.12	=	T	
316	-0.13	=	G	
317	0.37		V	====
318	0.67		R	=======

Fig. 1F

```
319   -0.13                                =  G
320   -0.20                               ==  L
321    0.60                                   H ======
322    0.43                                   K ====
323   -0.15                                =  S
324   -0.50                            =====  L
325    0.30                                   T ===
326    0.28                                   D ===
327    0.10                                   V =
328    0.85                                   A =========
329    1.43                                   L ==============
330    1.57                                   E ================
331    1.57                                   H ================
332    1.48                                   h ===============
333    0.92                                   E =========
334    0.25                                   E ===
335    0.36                                   C ====
336    0.64                                   D ======
337    0.30                                   C ===
338    0.51                                   V =====
339    0.87                                   C =========
340    1.15                                   R ============
341    0.00                                   G
342    0.00                                   S
343    0.00                                   T
344    0.00                                   G
345    0.00                                   G
             -----|---------|---------  |  ---------|---------|-----
                 -2        -1           0           1         2
            Hydrophobic                                  Hydrophilic
```

Fig. 1G

```
MSLFGLLLLTSALAGQRQGTQAESNLSSKFQFSSNKEQNGVQDPQHERIITVSTNGSIHS

MLLLGLLLLTSALAGQRTGTRAESNLSSKLQLSSDKEQNGVQDPRHERVVTISGNGSIHS
        10        20        30        40        50        60


PRFPHTYPRNTVLVWRLVAVEENVWIQLTFDERFGLEDPEDDICKYDFVEVEEPSDGTIL

PKFPHTYPRNMVLVWRLVAVDENVRIQLTFDERFGLEDPEDDICKYDFVEVEEPSDGSVL
        70        80        90       100       110       120


GRWCGSGTVPGKQISKGNQIRIRFVSDEYFPSEPGFCIHYNIVMPQFTEAVSPSVLPPSA

GRWCGSGTVPGKQTSKGNHIRIRFVSDEYFPSEPGFCIHYSIIMPQVTETTSPSVLPPSS
       130       140       150       160       170       180


LPLDLLNNAITAFSTLEDLIRYLEPERWQLDLEDLYRPTWQLLGKAFVFGRKSRVVDLNL

LSLDLLNNAVTAFSTLEELIRYLEPDRWQVDLDSLYKPTWQLLGKAFLYGKKSKVVNLNL
       190       200       210       220       230       240


LTEEVRLYSCTPRNFSVSIREELKRTDTIFWPGCLLVKRCGGNCACCLHNCNECQCVPSK

LKEEVKLYSCTPRNFSVSIREELKRTDTIFWPGCLLVKRCGGNCACCLHNCNECQCVPRK
       250       260       270       280       290       300


VTKKYHEVLQLRPKTGVRGLHKSLTDVALEHHEECDCVCRGSTGG (SEQ ID NO:2)

VTKKYHEVLQLRPKTGVKGLHKSLTDVALEHHEECDCVCRGNAGG (SEQ ID NO:4)
       310       320       330       340
```

Fig. 2